TA-212

AEP Model
UK Model
E Model

INTEGRATED STEREO AMPLIFIER

SPECIFICATIONS

GENERAL

Power Requirements: 220 V ac, 50 Hz (AEP model)
240 V ac, 50 Hz (UK model)
110, 120, 220 or 240 V ac adjustable, 50/60 Hz (E model)

Power Consumption: 73 W (AEP model)
83 W (UK model)
86 W (E model)

Dimensions: Approx. 407 (w) x 150 (h) x 300 (d) mm
16 (w) x 5 7/8 (h) x 11 7/8 (d) inches
including projecting parts and controls

Weight: Approx. 5.1 kg, 11 lb 4 oz (net)
6.1 kg, 13 lb 7 oz (in shipping carton)

AMPLIFIER SECTION

System: Direct output coupling, complementary Symmetry power amplifier circuit (SEPP OTL)

Continuous RMS Power Output: (Less than 3% THD, both channels driven simultaneously)
At 50 Hz – 16 kHz
12 + 12 W (8 Ω)
At 1 kHz
15 + 15 W (8 Ω)
According to DIN 45500
11 + 11 W (8 Ω)

Dynamic Power Output: (IHF constant power supply method) 52 W (8 Ω)

Power Bandwidth: (IHF) 40 Hz – 20 kHz (8 Ω)

Damping Factor: 20 at 1 kHz (8 Ω)

– Continued on page 2 –

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY SHADING AND MARK ⚠ ON THE SCHEMATIC DIAGRAMS, EXPLODED VIEWS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

SONY®
SERVICE MANUAL

Harmonic Distortion: Less than 3 % at rated output
Less than 0.8 % at 1 W output

IM Distortion: Less than 3 % at rated output
(60Hz : 7kHz = 4 : 1) Less than 0.8 % at 1 W output

Frequency Response: PHONO: RIAA equalization curve ± 1.5 dB
MIC: 250 Hz – 9 kHz ± 3 dB

Residual Noise: Less than 0.29 μW (8 Ω)

Inputs:

	Sensitivity	Impedance	Maximum input capability (1 % distortion, at 1 kHz)
PHONO	3 mV	47 kΩ	100 mV
MIC	3.8 mV	600 Ω	23 mV
TUNER TAPE	160 mV	47 kΩ	

Outputs:

REC OUT	voltage 140 mV	impedance 18 kΩ
SPEAKER	Accepts speaker of 8 Ω – 16 Ω	
HEADPHONES	Accepts headphones of 8 Ω or more	

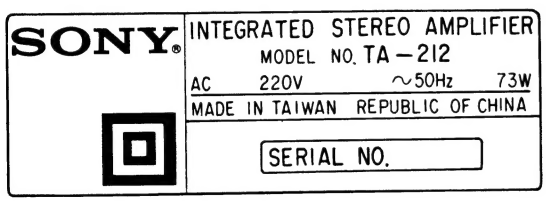
Tone Controls: BASS: ± 7.5 dB at 100 Hz
TREBLE: ± 7.5 dB at 10 kHz

Loudness: +7 dB at 50 Hz

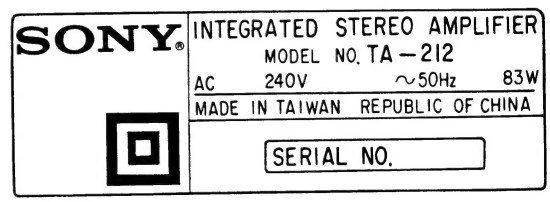
MODEL IDENTIFICATION

– Specification Label –

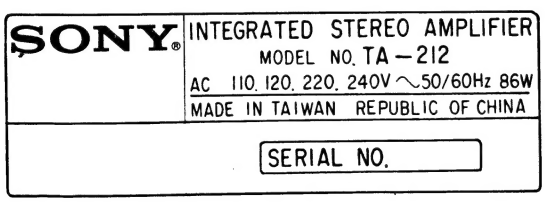
AEP model



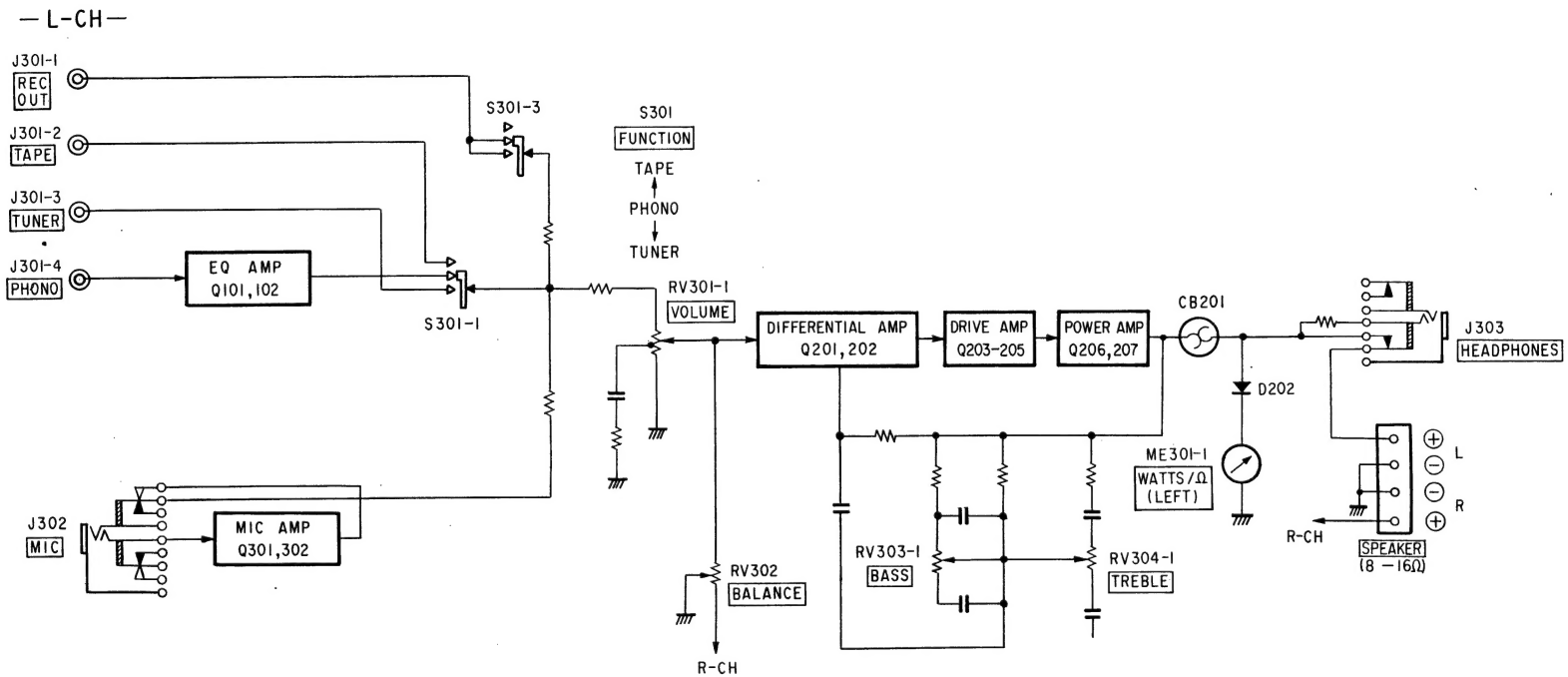
UK model



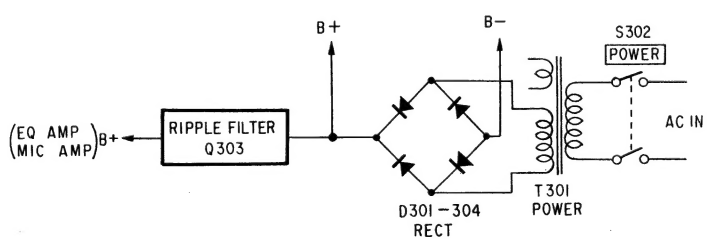
E model


SONY
INTEGRATED STEREO AMPLIFIER
MODEL NO. TA – 212
AC 110. 120. 220. 240V ~50/60Hz 86W
MADE IN TAIWAN REPUBLIC OF CHINA
SERIAL NO.

1-1. BLOCK DIAGRAM



—R-CH—
(SAME AS L-CH)



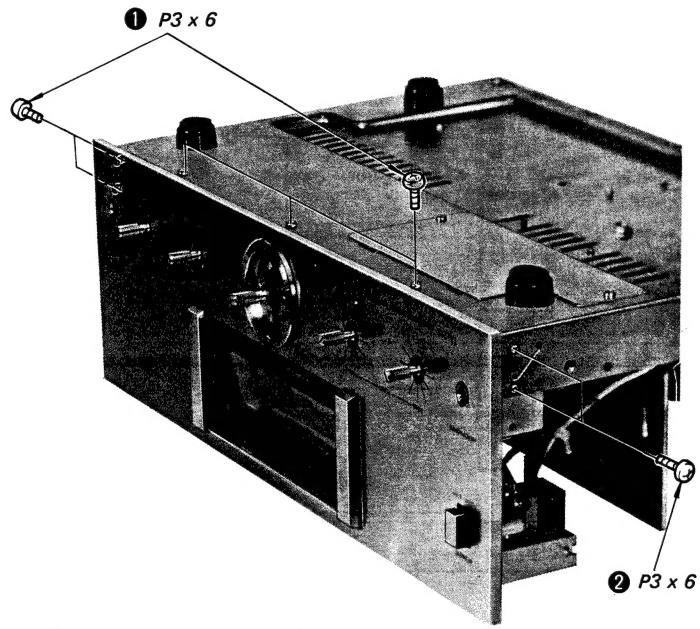
SECTION 2
DISASSEMBLY AND REPLACEMENT

- Follow the disassembly procedure in the numerical order given.

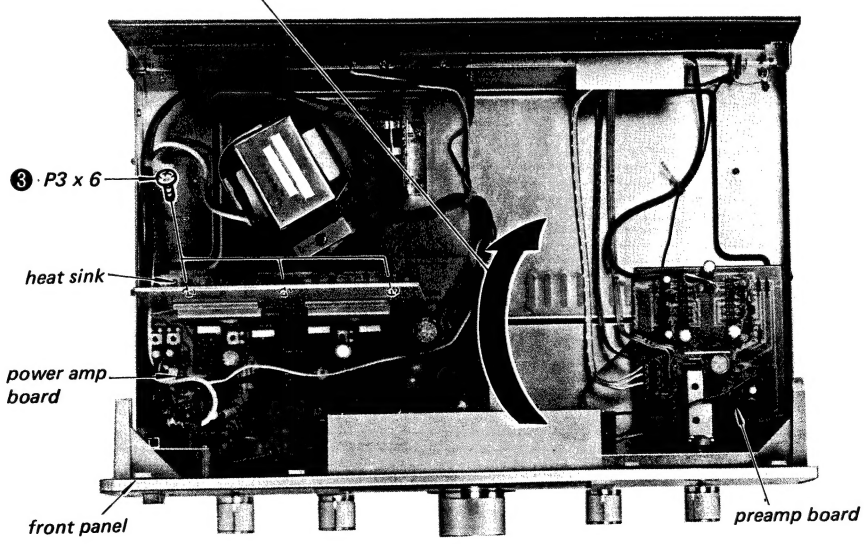
Top Cover Removal

- Remove six screws.

- **CIRCUIT BOARD CHECK**



❹ *Turn the power amp and preamp circuit boards over.*



❺ *The power amp and preamp circuit boards can be checked.*

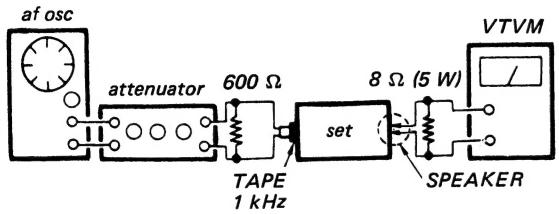
SECTION 3
ADJUSTMENT

Power Meter Adjustment

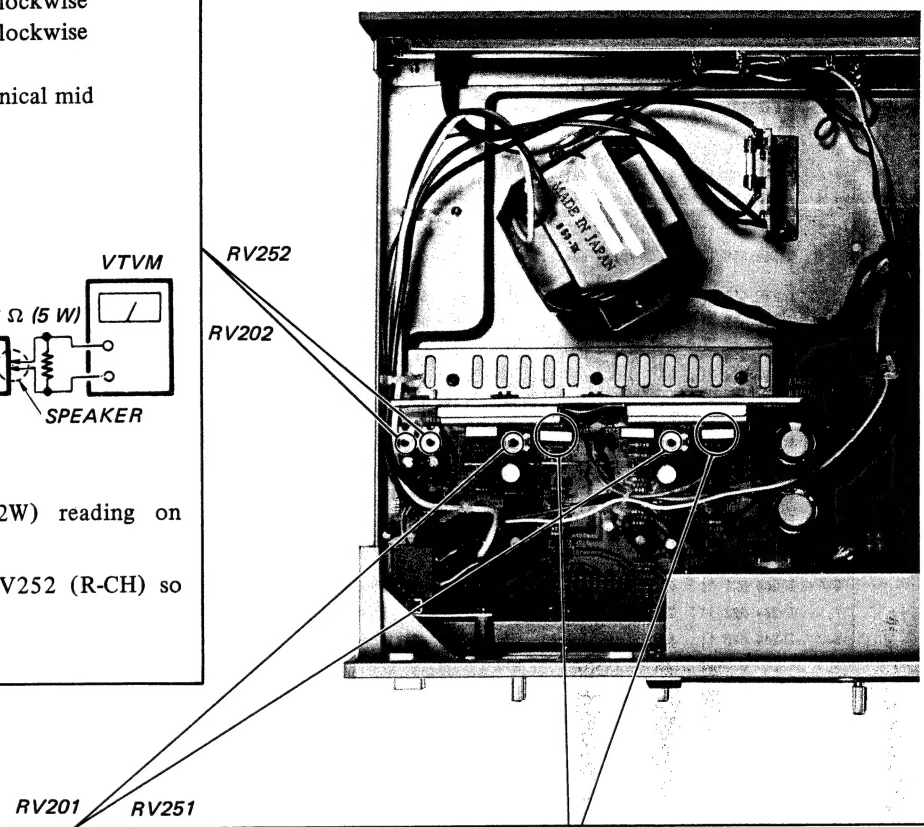
Setting: VOLUME control: fully clockwise
BASS control: fully clockwise
TREBLE control: fully clockwise
FUNCTION switch: TAPE
BALANCE control: mechanical mid

Procedure:

1.

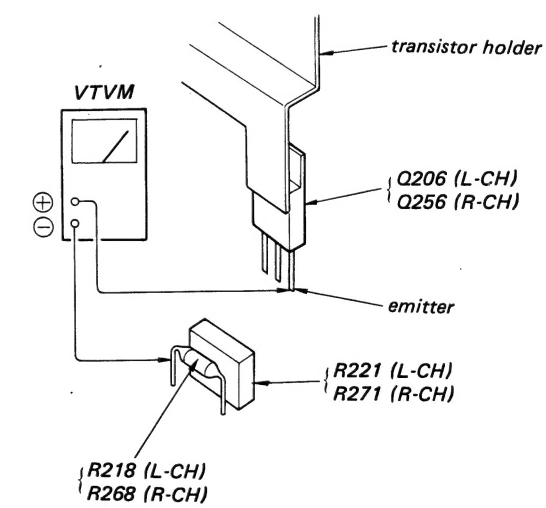


2. Adjust attenuator for 4V (2W) reading on VTVM.
3. Adjust RV202 (L-CH) and RV252 (R-CH) so that power meters indicate 2W.



DC Bias Adjustment

1. Connect a VTVM.
2. With no input signal, adjust RV201 (L-CH) and RV251 (R-CH) for 10mV dc reading on VTVM.



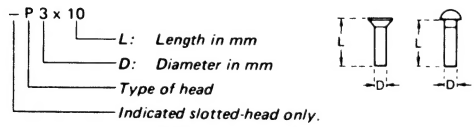
1/4 WATT CARBON RESISTORS Ⓐ

Note: Circled letter Ⓐ is applicable to European models only.

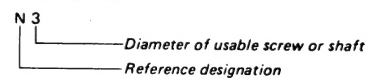
Ω	*Part No.*	Ω	*Part No.*	Ω	*Part No.*	Ω	*Part No.*	Ω	*Part No.*	Ω	*Part No.*	Ω	*Part No.*
1.0	1-244-601-11	10	1-244-625-11	100	1-244-649-11	1.0k	1-244-673-11	10 k	1-244-697-11	100 k	1-244-721-11	1.0M	1-244-745-11
1.1	1-244-602-11	11	1-244-626-11	110	1-244-650-11	1.1k	1-244-674-11	11 k	1-244-698-11	110 k	1-244-722-11	1.1M	1-244-746-11
1.2	1-244-603-11	12	1-244-627-11	120	1-244-651-11	1.2k	1-244-675-11	12 k	1-244-699-11	120 k	1-244-723-11	1.2M	1-244-747-11
1.3	1-244-604-11	13	1-244-628-11	130	1-244-652-11	1.3k	1-244-676-11	13 k	1-244-700-11	130 k	1-244-724-11	1.3M	1-244-748-11
1.5	1-244-605-11	15	1-244-629-11	150	1-244-653-11	1.5k	1-244-677-11	15 k	1-244-701-11	150 k	1-244-725-11	1.5M	1-244-749-11
1.6	1-244-606-11	16	1-244-630-11	160	1-244-654-11	1.6k	1-244-678-11	16 k	1-244-702-11	160 k	1-244-726-11	1.6M	1-244-750-11
1.8	1-244-607-11	18	1-244-631-11	180	1-244-655-11	1.8k	1-244-679-11	18 k	1-244-703-11	180 k	1-244-737-11	1.8M	1-244-751-11
2.0	1-244-608-11	20	1-244-632-11	200	1-244-656-11	2.0k	1-244-680-11	20 k	1-244-704-11	200 k	1-244-728-11	2.0M	1-244-752-11
2.2	1-244-609-11	22	1-244-633-11	220	1-244-657-11	2.2k	1-244 681-11	22 k	1-244-705-11	220 k	1-244-729-11	2.2M	1-244-753-11
2.4	1-244-610-11	24	1-244-634-11	240	1-244-658-11	2.4k	1-244-682-11	24 k	1-244-706-11	240 k	1-244-730-11	2.4M	1-244-754-11
2.7	1-244-611-11	27	1-244-635-11	270	1-244-659-11	2.7k	1-244-683-11	27 k	1-244-707-11	270 k	1-244-731-11	2.7M	1-244-755-11
3.0	1-244-612-11	30	1-244-636-11	300	1-244-660-11	3.0k	1-244-684-11	30 k	1-244-708-11	300 k	1-244-732-11	3.0M	1-244-756-11
3.3	1-244-613-11	33	1-244-637-11	330	1-244-661-11	3.3k	1-244-685-11	33 k	1-244-709-11	330 k	1-244-733-11	3.3M	1-244-757-11
3.6	1-244-614-11	36	1-244-638-11	360	1-244-662-11	3.6k	1-244-686-11	36 k	1-244-710-11	360 k	1-244-734-11	3.6M	1-244-758-11
3.9	1-244-615-11	39	1-244-639-11	390	1-244-663-11	3.9k	1-244-687-11	39 k	1-244-711-11	390 k	1-244-735-11	3.9M	1-244-759-11
4.3	1-244-616-11	43	1-244-640-11	430	1-244-664-11	4.3k	1-244-688-11	43 k	1-244-712-11	430 k	1-244-736-11	4.3M	1-244-760-11
4.7	1-244-617-11	47	1-244-641-11	470	1-244-665-11	4.7k	1-244-689-11	47 k	1-244-713-11	470 k	1-244-737-11	4.7M	1-244-761-11
5.1	1-244-618-11	51	1-244-642-11	510	1-244-666-11	5.1k	1-244-690-11	51 k	1-244-714-11	510 k	1-244-738-11	5.1M	1-244-762-11
5.6	1-244-619-11	56	1-244-643-11	560	1-244-667-11	5.6k	1-244-691-11	56 k	1-244-715-11	560 k	1-244-739-11		
6.2	1-244-620-11	62	1-244-644 11	620	1-244-668-11	6.2k	1-244-692-11	62 k	1-244-716-11	620 k	1-244-740-11		
6.8	1-244-621-11	68	1-244-645-11	680	1-244-669-11	6.8k	1-244-693-11	68 k	1-244-717-11	680 k	1-244-741-11		
7.5	1-244-622-11	75	1-244-646-11	750	1-244-670-11	7.5k	1-244-694-11	75 k	1-244-718-11	750 k	1-244-742-11		
8.2	1-244-623-11	82	1-244-647-11	820	1-244-671-11	8.2k	1-244-695-11	82 k	1-244-719-11	820 k	1-244-743-11		
9.1	1-244-624-11	91	1-244-648-11	910	1-244-672-11	9.1k	1-244-696-11	91 k	1-244-720-11	910 k	1-244-744-11		

HARDWARE NOMENCLATURE

Screw:



Nut, Washer, Retaining ring:



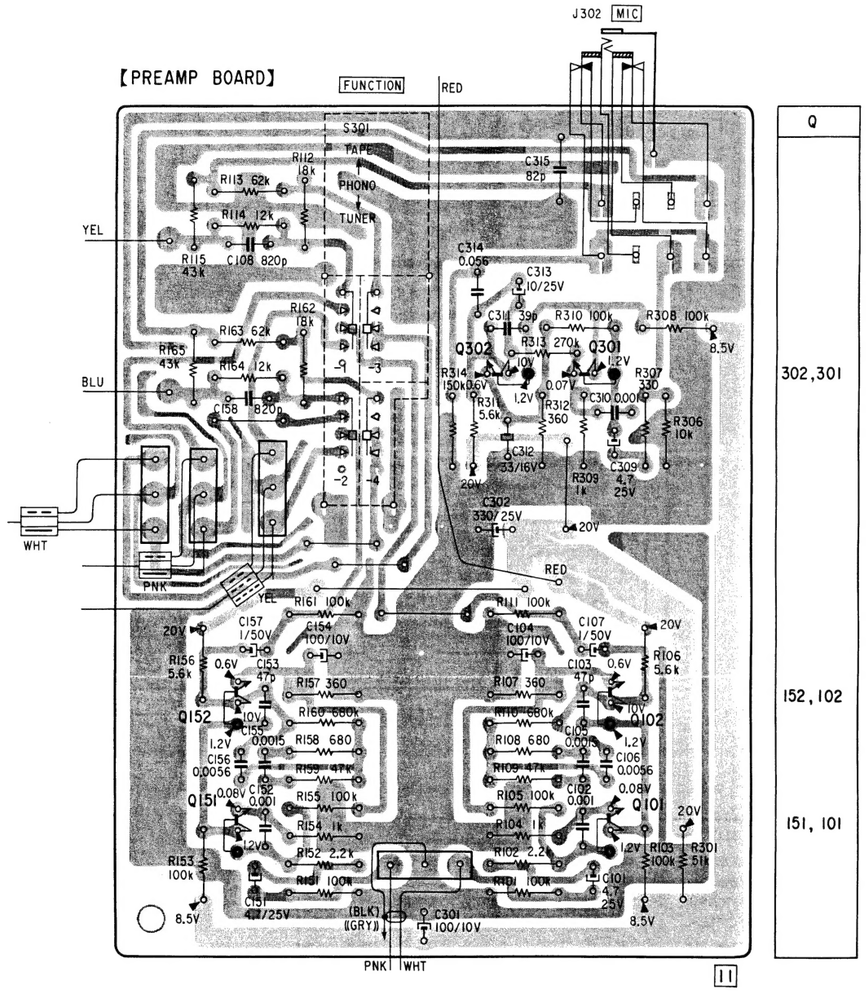
Reference Designation	Shape	Description	Remarks
SCREWS			
P		pan-head screw	binding-head (B) screw for replacement
PWH		pan-head screw with washer face	binding-head (B) screw and flat washer for replacement
PS PSP		pan-head screw with spring washer	binding-head (B) screw and spring washer for replacement
PSW PSPW		pan-head screw with spring and flat washers	binding-head (B) screw and spring and flat washers for replacement
R		round-head screw	binding-head (B) screw for replacement
K		flat-countersunk-head screw	
RK		oval-countersunk-head screw	
B		binding-head screw	
T		truss-head screw	binding-head (B) screw for replacement
F		flat-fillister-head screw	
RF		fillister-head screw	
BV		braizer-head screw	

Reference Designation	Shape	Description	Remarks
SELF-TAPPING SCREWS			
TA		self-tapping screw	ex: TA, P 3 x 10
PTP		pan-head self-tapping screw	binding-head self-tapping (TA, B) screw for replacement
PTPWH		pan-head self-tapping screw with washer face	binding-head self tapping (TA, B) screw and flat washer for replacement
PTTWH		pan-head thread-rolling screw with washer face	binding-head (B) screw and flat washer for replacement
SET SCREWS			
SC		set screw	
SC		hexagon-socket set screw	ex: SC 2.6 x 4, hexagon socket
NUT			
N		nut	
WASHERS			
W		flat washer	
SW		spring washer	
LW		internal-tooth lock washer	ex: LW3, internal
LW		external-tooth lock washer	ex: LW3, external
RETAINING RINGS			
E		retaining ring	
G		grip-type retaining ring	

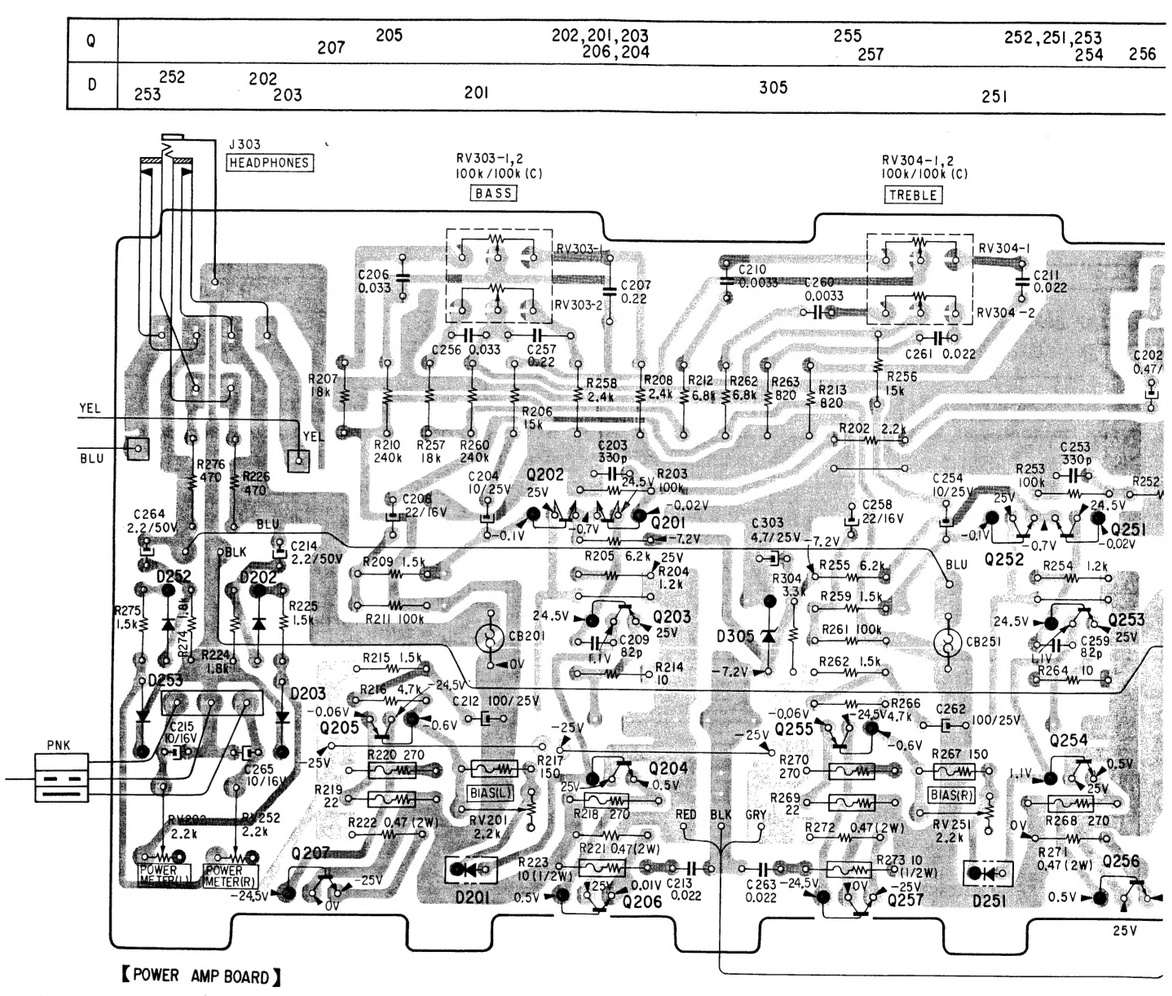
SECTION 4
DIAGRAMS

4-1. MOUNTING DIAGRAM – PREAMP and POWER AMP BOARDS –

– Conductor Side –

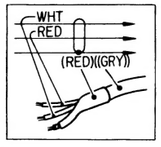


Q
302,301
152, 102
151, 101



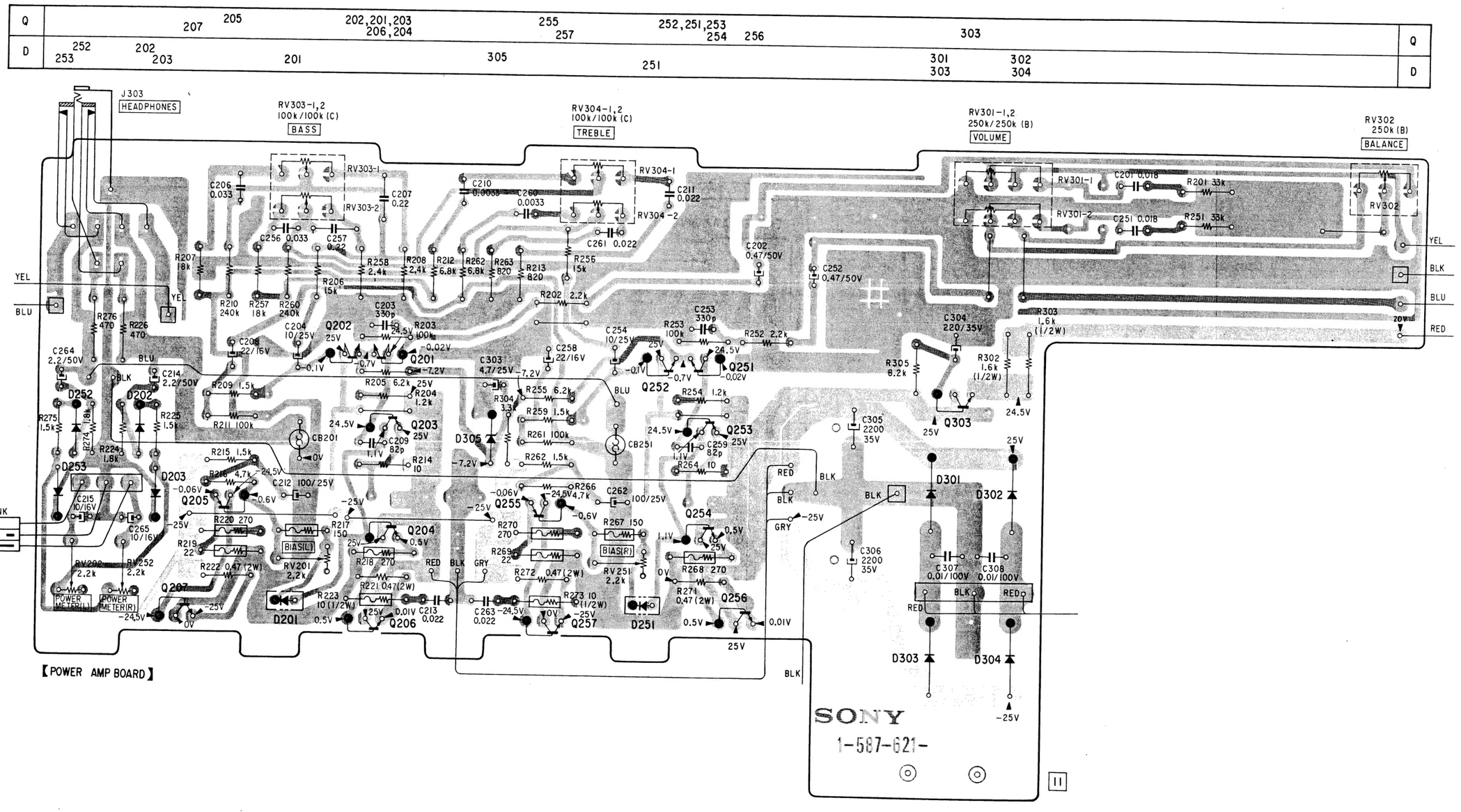
Note:

- Color code of sleeving over the end of the jacket.



- ▬ B+ pattern.
- ▭ : B– pattern

TA-212

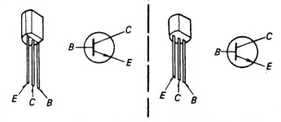

Q 207 205 202,201,203 206,204 255 257 252,251,253 254 256 303 Q
D 252 253 202 203 201 305 251 301 303 302 304 D
J303 HEADPHONES
RV303-1,2 100k/100k (C) BASS
RV304-1,2 100k/100k (C) TREBLE
RV301-1,2 250k/250k (B) VOLUME
RV302 250k (B) BALANCE
RV303-1
RV303-2
RV304-1
RV304-2
RV301-1
RV301-2
RV302
C206 0.033
C207 0.22
C210 0.0033
C260 0.0033
C211 0.022
C261 0.022
C256 0.033
C257 0.22
C201 0.018
C251 0.018
R201 33k
R251 33k
R207 18k
R258 2.4k
R208 2.4k
R212 6.8k
R262 6.8k
R263 820
R213 820
R256 15k
R206 15k
R210 240k
R257 18k
R260 240k
R202 2.2k
C202 0.47/50V
C252 0.47/50V
C253 330p
R253 100k
R252 2.2k
C254 10/25V
C203 330p
R203 100k
Q202
Q201
Q251
Q252
C204 10/25V
C208 22/16V
C258 22/16V
C303 4.7/25V
R276 470
R226 470
C264 2.2/50V
C214 2.2/50V
R209 1.5k
R211 100k
R205 6.2k
R204 1.2k
R255 6.2k
R259 1.5k
R261 100k
R262 1.5k
R254 1.2k
R264 10
Q203
Q253
C209 82p
C259 82p
R304 3.3k
D305
CB201
CB251
D252
D202
R275 1.5k
R274 1.8k
R225 1.5k
R224 1.8k
R215 1.5k
R216 4.7k
C212 100/25V
R266 4.7k
C262 100/25V
D253
D203
C215 10/16V
C265 10/16V
Q205
Q255
Q254
R220 270
R217 150
R270 270
R267 150
R219 22
R269 22
R218 270
Q204
BIAS(L)
BIAS(R)
RV202 2.2k
RV252 2.2k
RV201 2.2k
RV251 2.2k
R222 0.47 (2W)
R272 0.47 (2W)
R268 270
R271 0.47 (2W)
R221 0.47 (2W)
R223 10 (1/2W)
R273 10 (1/2W)
Q207
Q206
Q257
Q256
D201
D251
C213 0.022
C263 0.022
C304 220/35V
R303 1.6k (1/2W)
R305 8.2k
R302 1.6k (1/2W)
Q303
C305 2200 35V
C306 2200 35V
C307 0.01/100V
C308 0.01/100V
D301
D302
D303
D304
PNK
YEL
BLU
BLK
RED
GRY
POWER METER(L)
POWER METER(R)
20V
25V
24.5V
-25V
-24.5V
【POWER AMP BOARD】
SONY
1-587-621-

4-2. MOUNTING DIAGRAM

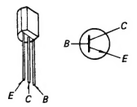
- **Replacement Semiconductors**

  For replacement, use semiconductors except in ( ).

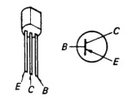
Q101, 151, Q102, 152, Q301, 302 : 2SC1362 (2SC900F)



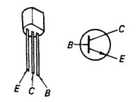
Q201, 251, Q202, 252, Q303 : 2SC1362 (2SC945P)



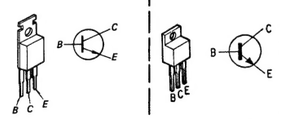
Q203, 253: 2SA684 (2SA953K)
Q205, 255: 2SA684 (2SA953L)



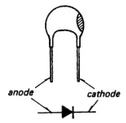
Q204, 254: 2SC1475 (2SC2002L)



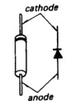
Q206, 256, Q207, 257 : 2SC1061 (2SD313E)



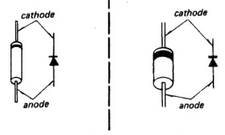
D201, 251: VD1221 (VD1222)



D202, 252, D203, 253: 1T22AM (1S188AM)
D305: RD6.8E-C (RD7.5EB2)

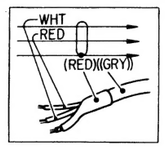


D301–304: 10E2 (1N4003)

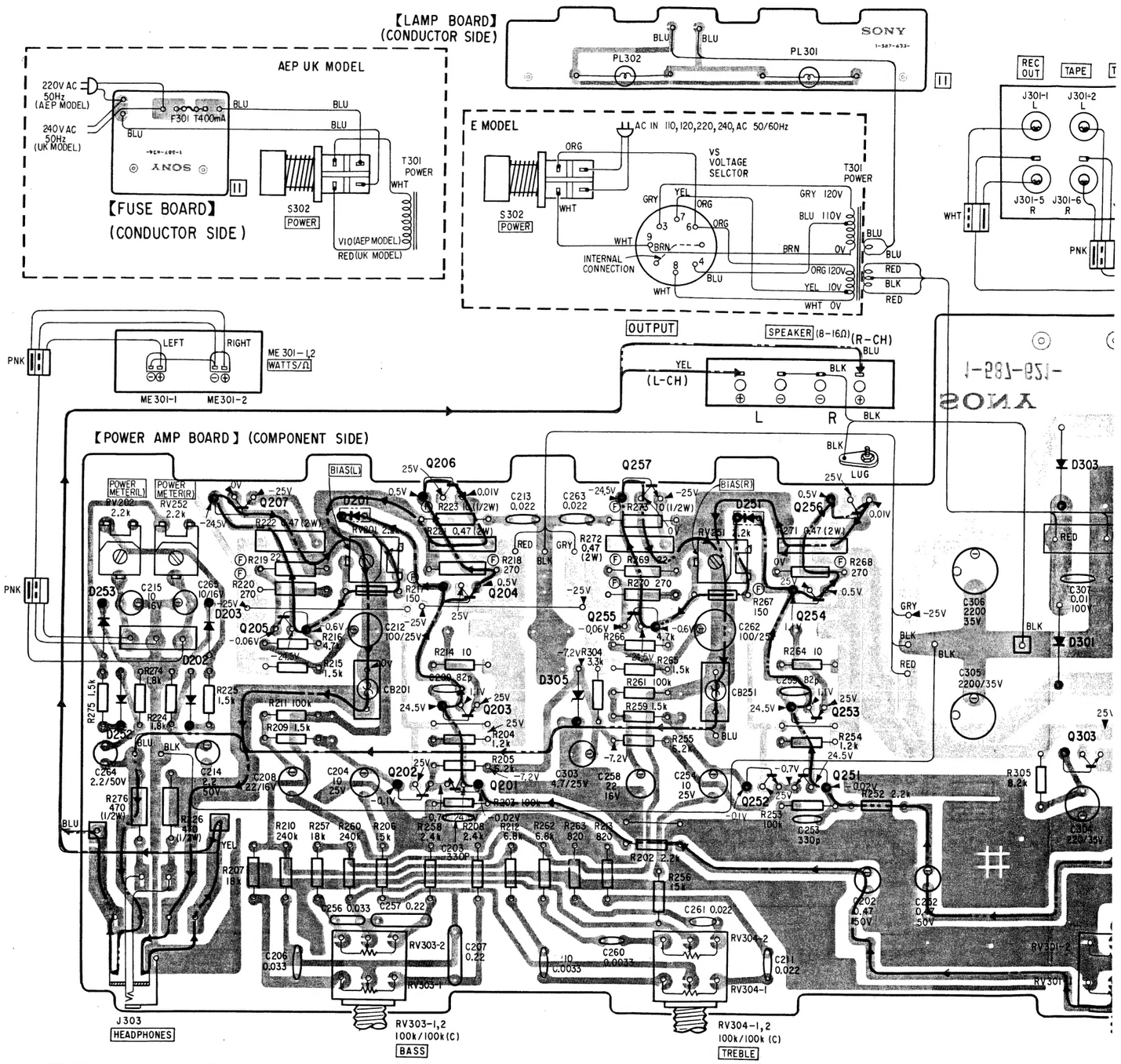


Note:

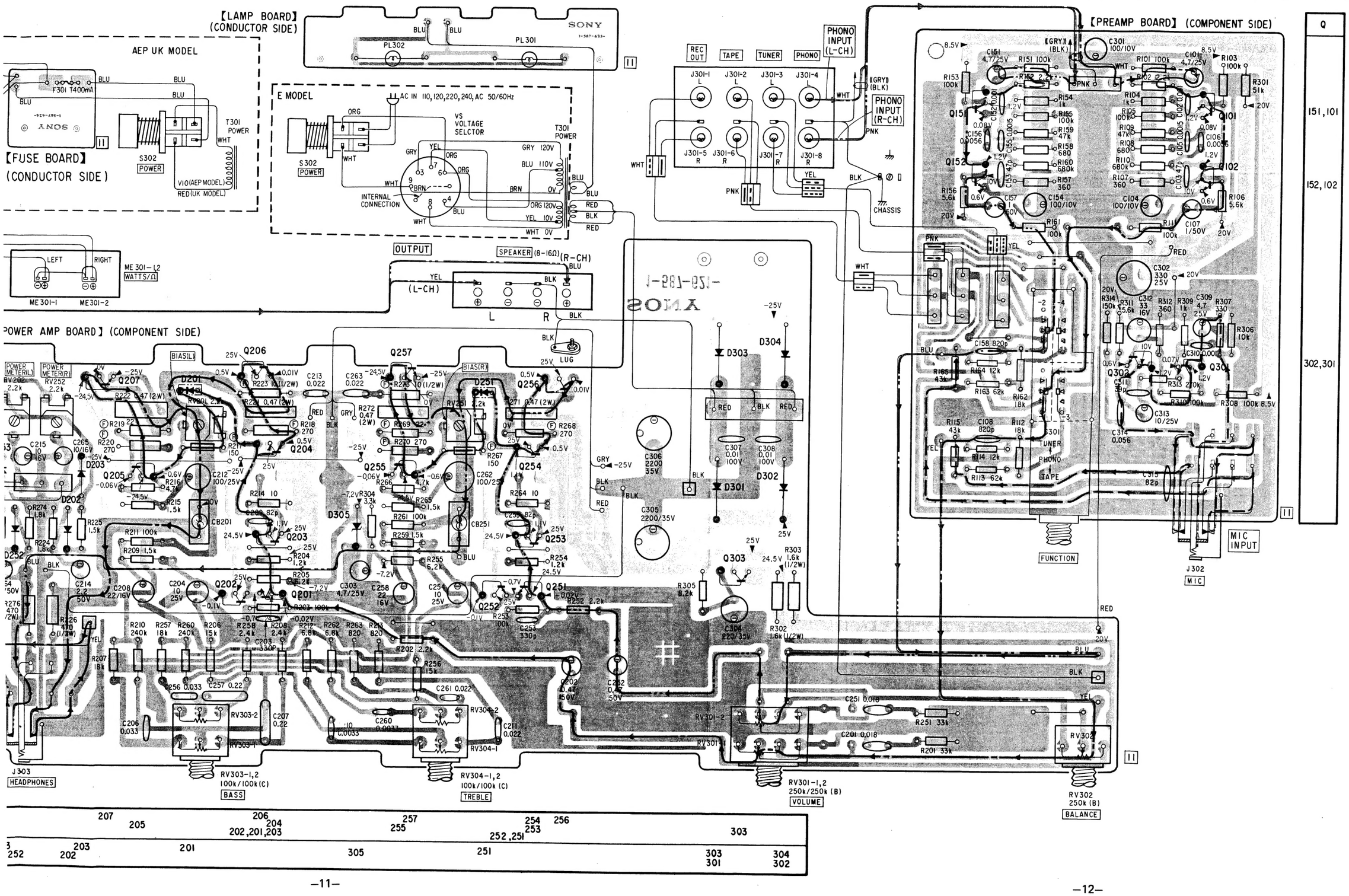
- Color code of sleeving over the end of the jacket.



- ▩ : B+ pattern.
- ▩ : B– pattern.
- Signal Path
  - ——→ : MIC
  - —–→ : L-CH
  - —·→ : R-CH
- (F) : fusible resistor.



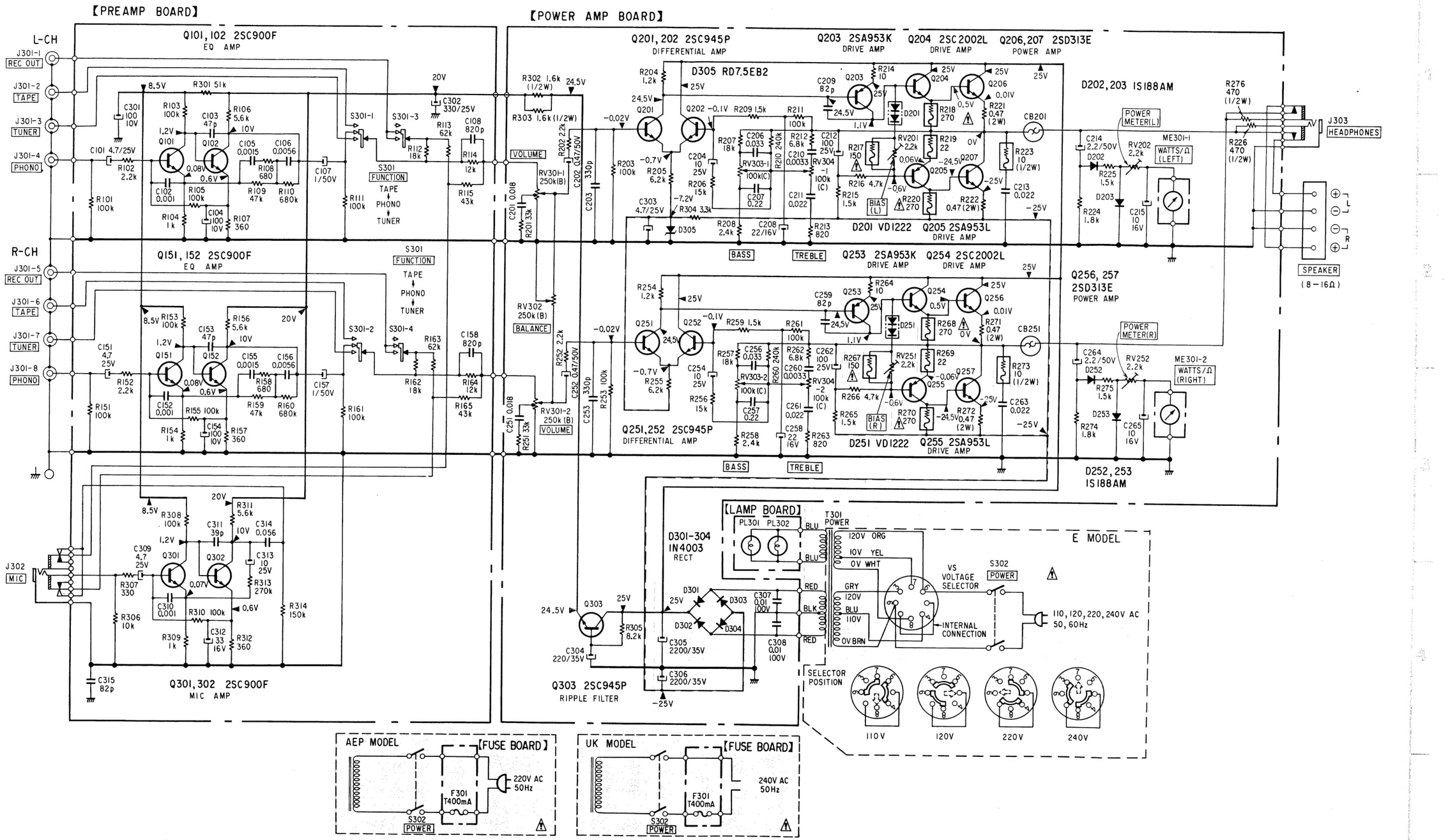
| | | |



Q
151,101
152,102
302,301

| | | |

4-3. SCHEMATIC DIAGRAM



Note:

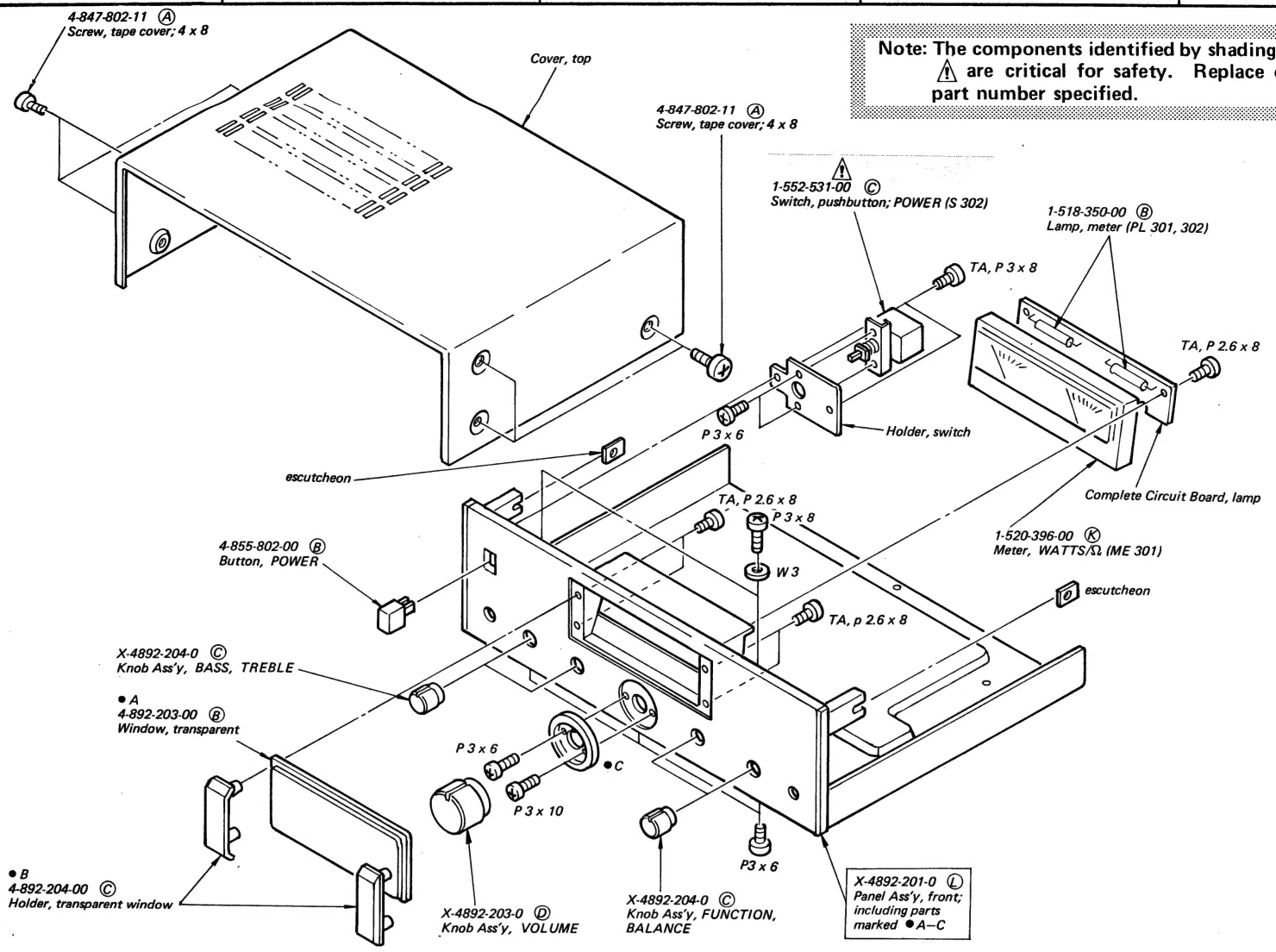
- All capacitors are in μF unless otherwise noted. pF : μμF 50WV or less are not indicated except for electrolytics.
- All resistors are in ohms, ¼W unless otherwise noted. kΩ : 1000Ω, MΩ : 1000kΩ
- ⊣⊢: fusible resistor.
- ——: B+ bus.
- ——: B– bus.
- ▭: panel designation.
- ▭: adjustment for repair.
- Voltages are dc with respect to ground unless otherwise noted.
- Readings are taken under no signal conditions with a VOM (20kΩ/V).
- Voltage variations may be noted due to normal production tolerances.
- Switch

Ref. No.	Switch	Position
S301-1 to 301-4	FUNCTION	PHONO
S302	POWER	OFF

Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

(1)

Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

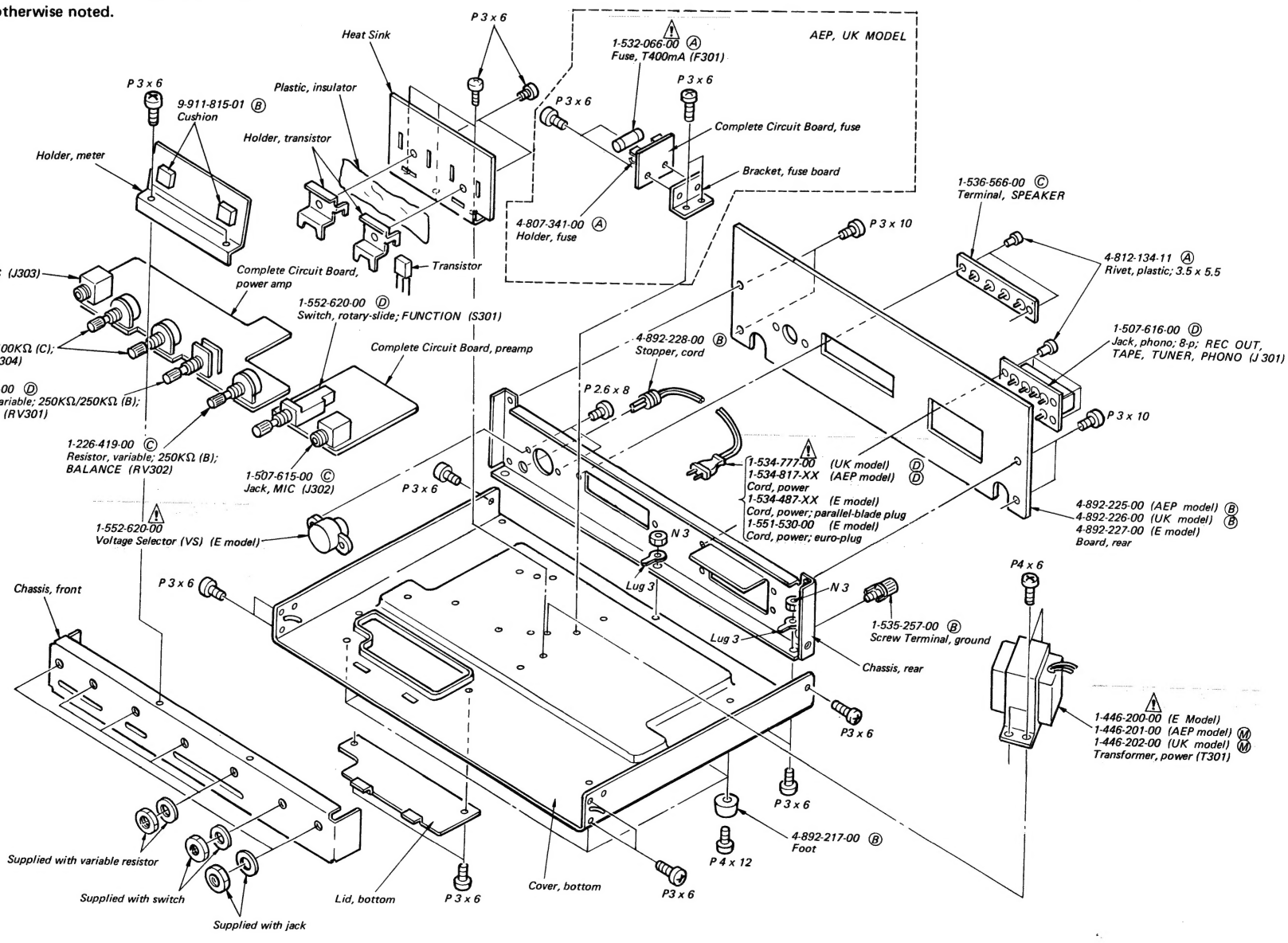


Note:

- Items with no part number and/or no description are not stocked because they are seldom required for routine service.
- All screws are Phillips (cross recess) type unless otherwise noted.
- Circled letters (Ⓐ to Ⓩ) are applicable to European models only.

(2)

Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.



SECTION 6
ELECTRICAL PARTS LIST

• Circled letters (Ⓐ to Ⓩ) are applicable to European models only.

Ref. No.	Part No.	Description
		SEMICONDUCTORS
		Transistors
⇒ Q101, 151 ⇒ Q102, 152 ⇒ Q201, 251 ⇒ Q202, 252	8-729-665-47	Ⓑ 2SC1362
⇒ Q203, 253	8-729-468-43	Ⓒ 2SA684
⇒ Q204, 254	8-760-413-10	Ⓒ 2SC1475
⇒ Q205, 255	8-729-468-43	Ⓒ 2SA684
⇒ Q206, 265 ⇒ Q207, 257	8-729-316-12	Ⓓ 2SC1061
⇒ Q301–303	8-729-665-47	Ⓑ 2SC1362
		Diodes
⇒ D201, 251	8-719-122-10	Ⓑ VD1221
⇒ D202, 252 ⇒ D203, 253	8-719-422-21	Ⓑ 1T22AM
⇒ D301–304	⚠ 8-719-200-02	Ⓑ 10E2
⇒ D305	8-719-168-77	Ⓐ RD6.8E-C
		TRANSFORMERS
T301	⚠ 1-446-200-00	Power (E model)
T301	⚠ 1-446-201-00	Ⓜ Power (AEP model)
T301	⚠ 1-446-202-00	Ⓜ Power (UK model)
		CAPACITORS

All capacitors are in μF and ceramic unless otherwise noted. 50WV or less are not indicated except for electrolytics.
p : μμF, elect : electrolytic

C101, 151	1-121-395-00	Ⓐ 4.7	25V	elect
C102, 152	1-102-074-00	Ⓐ 0.001		
C103, 153	1-101-888-00	Ⓐ 47p		
C104, 154	1-121-414-00	Ⓐ 100	10V	elect
C105, 155	1-108-367-00	Ⓐ 0.0015		mylar
C106, 156	1-108-623-00	Ⓐ 0.0056		mylar
C107, 157	1-121-391-00	Ⓐ 1	50V	elect
C108, 158	1-102-117-00	Ⓐ 820p		
C201, 251	1-108-380-00	Ⓐ 0.018		mylar
C202, 252	1-121-726-00	Ⓐ 0.47	50V	elect
C203, 253	1-102-112-00	Ⓐ 330p		
C204, 254	1-123-187-00	Ⓐ 10	25V	elect
C206, 256	1-108-383-00	Ⓐ 0.033		mylar
C207, 257	1-108-611-00	Ⓑ 0.22		mylar
C208, 258	1-121-479-00	Ⓐ 22	16V	elect
C209, 259	1-102-971-00	Ⓐ 82p		
C210, 260	1-108-620-00	Ⓐ 0.0033		mylar
C211, 261	1-108-381-00	Ⓑ 0.022		mylar
C212, 262	1-121-417-00	Ⓑ 100	25V	elect
C213, 263	1-108-381-00	Ⓑ 0.022		mylar
C214, 264	1-121-450-00	Ⓐ 2.2	50V	elect
C215, 265	1-121-651-00	Ⓐ 10	16V	elect
C301	1-121-414-00	Ⓐ 100	10V	elect
C302	1-121-654-00	Ⓑ 330	25V	elect
C303	1-121-395-00	Ⓐ 4.7	25V	elect
C304	1-121-261-00	Ⓑ 220	35V	elect
C305, 306	⚠ 1-121-984-00	Ⓓ 2200	35V	elect
C307, 308	⚠ 1-108-377-00	Ⓐ 0.01	100V	mylar
C309	1-121-395-00	Ⓐ 4.7	25V	elect
C310	1-102-074-00	Ⓐ 0.001		
C311	1-101-965-00	Ⓐ 39p		
C312	1-121-403-00	Ⓐ 33	16V	elect
C313	1-123-187-00	Ⓐ 10	25V	elect
C314	1-108-417-00	Ⓐ 0.056		mylar
C315	1-102-971-00	Ⓐ 82p		

RESISTORS

All resistors are in ohms. Common ¼W carbon resistors are omitted. Refer to the list page 6 for their part numbers.

R217, 267	⚠ 1-212-885-00	Ⓐ 150	¼W	fusible
R218, 268	⚠ 1-212-891-00	Ⓑ 270	¼W	fusible
R219, 269	⚠ 1-212-865-00	Ⓐ 22	¼W	fusible
R220, 270	⚠ 1-212-891-00	Ⓑ 270	¼W	fusible
R221, 271 R222, 272	⚠ 1-217-153-00	Ⓐ 0.47	2W	metal plate
R223, 273	⚠ 1-212-958-00	Ⓐ 10	½W	fusible
R226, 276	1-242-465-00	Ⓐ 470	½W	carbon
R302, 303	1-246-478-00	Ⓐ 1.6k	½W	carbon

• ⇒: Due to standardization, interchangeable replacements may be substituted for parts specified in the diagrams.

Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

- Circled letters (Ⓐ to Ⓩ) are applicable to European models only.

Ref. No.	*Part No.*	*Description*
RV201,251 RV202,252	1-226-234-00	Ⓐ 2.2k (B), adjustable
RV301	1-226-373-00	Ⓓ 250k/250k (B), variable; VOLUME
RV302	1-226-419-00	Ⓒ 250k (B), variable; BALANCE
RV303,304	1-226-372-00	Ⓓ 100k/100k (C), variable; BASS, TREBLE
	SWITCHES	
S301	1-552-620-00	Ⓓ Rotary-slide, FUNCTION
S302	⚠1-552-531-00	Ⓒ Pushbutton, POWER
	JACKS	
J301	1-507-616-00	Ⓓ Phono, 8-p; REC OUT, TAPE, TUNER, PHONO
J302	1-507-615-00	Ⓒ MIC
J303	1-507-628-00	Ⓒ HEADPHONES
VS	⚠1-552-620-00	Voltage Selector (E model)
	MISCELLANEOUS	
CB201,251	⚠1-532-549-00	Ⓒ Circuit Breaker
F301	⚠1-532-066-00	Ⓐ Fuse, T400mA (AEP, UK model)
ME301	1-520-396-00	Ⓚ Meter, WATTS/Ω
PL301,302	1-518-350-00	Ⓑ Lamp, meter
	⚠1-534-487-XX	Cord, power; parallel-blade plug (E model)
	⚠1-534-777-00	Ⓓ Cord, power (UK model)
	⚠1-534-817-XX	Ⓓ Cord, power (AEP model)
	1-535-257-00	Ⓑ Screw Terminal, ground
	1-536-566-00	Ⓒ Terminal, SPEAKER
	⚠1-551-530-00	Cord, power; euro-plug (E model)

Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

ACCESSORIES & PACKING MATERIALS

Part No.	*Description*
3-701-630-00	Ⓐ Bag, plastic; instruction manual
4-891-037-00	Ⓑ Bag, plastic; set
4-892-219-00	Ⓒ Cushion
4-892-220-00	Ⓓ Carton
4-892-229-00	Ⓑ Sheet, protection
4-892-290-00 4-892-299-11	Ⓑ Ⓒ Manual, instruction (AEP, UK model)
4-892-299-11	Manual, instruction (E model)